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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,695	07/20/2001	Joseph A. Hedrick	DX0757K	2825

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DNAX RESEARCH, INC.
LEGAL DEPARTMENT
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EXAMINER

MERTZ, PREMA MARIA

ART UNIT	PAPER NUMBER
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1646

DATE MAILED: 07/01/2003

11

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/910,695

Applicant(s)
Hedrick et al.

Examiner
Prama Mertz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Apr 15, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-15, 17-19, 23-27, and 37-41 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-15, 17-19, 23-27, and 37-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s): _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s): _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

1. Claims 1-10, 20-21, 28-36 have been canceled previously. Claims 16 and 22 have been canceled in Paper No.10 (4/15/03). Claims 11, 14, 18, 38-39, new claim 41 (Paper No. 10, 4/15/03), and amended claims 12, 13, 15, 17, 19, 23-27, 37 and 40 (Paper No. 10, 4/15/03), are under consideration.
2. Receipt of applicant's arguments and amendments filed in Paper No. 10 (4/15/03) is acknowledged.
3. The following previous rejections and objections are withdrawn in light of applicants amendments filed in Paper No. 10, 4/15/03:
 - (i) the objection to the title of the invention;
 - (ii) the rejection of claim 19 under 35 U.S.C. § 101 as directed to non-statutory subject matter;
 - (iii) the rejection of claims 12-13 under 35 U.S.C. 101 as directed to non-statutory subject matter;
 - and (iv) the rejection of claims 15-17 and 19 under 35 U.S.C. 102(b) as being anticipated by Matsuoka et al. (1993).
4. Applicant's arguments filed in Paper No. 10 (4/15/03), have been fully considered but were persuasive in part. The issues remaining and new issues, are stated below.
5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 101

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6. Claims 15, 17-19, 41 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims embrace a nucleic acid on a chromosome. Therefore, claim 15 must be limited such that it does not encompass the product as it occurs in nature. However, since it would that applicants do not intend to claim a naturally occurring product, amending the claim to recite a recovery and/or purification step would obviate this rejection i.e. an isolated DNA.

7. Claims 11-15, 17-19, 23-27, 37-41 are rejected under 35 U.S.C. 101.

This rejection is maintained for reasons of record set forth at pages 3-6 of the previous Office action (Paper No. 9, 1/15/03).

Applicants argue that the claimed nucleic acid encoding BLRx polypeptide is expressed in various tissues and cell types (Figure 6) and the expression data for BLRx during various phases of wound healing studies (Figure 7) evidences that BLRx plays a role in wound healing. Applicant has traversed this rejection on the premise that the disclosure of the probable fact that the nucleic acid of the instant invention is regulated during wound healing is sufficient for utility. However, contrary to Applicants arguments, the issue here is that a nucleic acid can be patented even if it encodes no protein, provided the nucleic acid has a substantial disclosed utility. When such a nucleic acid can be used as a marker for a disease or disorder or as a promoter to obtain the production of a recombinant protein in a host cell, that nucleic acid has substantial and specific utility. A protein of unknown function would also have utility if it can be employed as an indicator of a diseased state of the presence of a disorder. The only disclosed function for a nucleic acid of the instant invention

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is that it can be used to produce a protein which in turn can be used to enhance wound healing. However, Applicants have failed to show the use of the instant nucleic acid to produce the protein which can be used in wound healing. Applicant is not being required to identify a physiological process mediated by the protein **and** a disease or disorder for which that protein or nucleic acid is a marker. Applicant is only required to identify **one** substantial credible utility and, as stated in the previous office action, the employment of this nucleic acid encoding a BLRx protein only as the subject of further research does not satisfy the utility requirement of 35 U.S.C. § 101 because the courts have interpreted this statute as requiring an invention to have "substantial utility" "where specific benefit exists in currently available form". The employment of a protein of the instant invention, or a nucleic acid encoding that protein, for the treatment of wounds is not a substantial or specific utility.

The examiner must simply provide sound reasoning in support of a conclusion that an element is lacking from a specification, and this has been done. In the instant case, it is the responsibility of Applicant to disclose a specific utility for the claimed invention and factually unsupported assertions like those presented i.e. for the treatment of wounds and/or block the fibrotic process are not specific utilities on their face that they need not be "proven" wrong. Applicants have failed to show a nexus between the BLRx protein and its use in wound healing.

The following is an excerpt from M.P.E.P. 2138.05:

Utility for the invention must be known at the time of the reduction to practice. *Wiesner v. Weigert*, 212 USPQ 721, 726 (CCPA 1981) (except for plant and design inventions); *Azar v. Burns*, 188 USPQ 601, 604 (Bd. Pat. Inter. 1975)

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(a composition and a method cannot be actually reduced to practice unless the composition and the product produced by the method have a practical utility); *Ciric v. Flanigen*, 185 USPQ 103, 105 - 6 (CCPA 1975) ("when a count does not recite any particular utility, evidence establishing a substantial utility for any purpose is sufficient to prove a reduction to practice"; "the demonstrated similarity of ion exchange and adsorptive properties between the newly discovered zeolites and known crystalline zeolites ... have established utility for the zeolites of the count"); *Engelhardt v. Judd*, 151 USPQ 732, 735 (CCPA 1966) (When considering an actual reduction to practice as a bar to patentability for claims to compounds, it is sufficient to successfully demonstrate utility of the compounds in animals for somewhat different pharmaceutical purposes than those asserted in the specification for humans.); *Rey - Bellet v. Engelhardt*, 181 USPQ 453, 455 (CCPA 1974) (Two categories of tests on laboratory animals have been considered adequate to show utility and reduction to practice: first, tests carried out to prove utility in humans where there is a satisfactory correlation between humans and animals, and second, tests carried out to prove utility for treating animals.).

A PROBABLE UTILITY MAY NOT BE SUFFICIENT TO ESTABLISH UTILITY

A probable utility does not establish a practical utility, which is established by actual testing or where the utility can be "foretold with certainty." *Bindra v. Kelly*, 206 USPQ 570, 575 (Bd. Pat. Inter. 1979) (Reduction to practice was not established for an intermediate useful in the preparation of a second intermediate with a known utility in the preparation of a pharmaceutical. The record established there was a high degree of probability of a successful preparation because one skilled in the art may have been motivated, in the sense of 35 U.S.C. 103, to prepare the second intermediate from the first intermediate. However, a strong probability of utility is not sufficient to establish practical utility.); *Wu v. Jucker*, 167 USPQ 467, 472 (Bd. Pat. Inter. 1968) (screening test where there was an indication of possible utility is insufficient to establish practical utility). But see *Nelson v. Bowler*, 206 USPQ 881, 885 (CCPA 1980) (Relevant evidence is judged as a whole for its persuasiveness in linking observed properties to suggested uses. Reasonable correlation between the two is sufficient for an actual reduction to practice.)."

Claims 11-15, 17-19, 23-27, 37-41 also remain rejected under 35 U.S.C. 112, first paragraph, as failing to adequately teach how to use the instant invention. Claims 11-15, 17-19, 23-27, 37-41

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stand rejected under 35 U.S.C. § 112, first paragraph, because the instant specification does not teach how to use the invention for those reasons of record in pages 3-6 of the previous Office action (Paper No. 9, 1/15/03).

Rejection under 35 USC § 112, first paragraph-new matter

8. Claim 37 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 37, line 2, recites "...27 amino acid fragment" which language is new matter in the claim, since the instant specification fails to disclose this range of amino acid residues in SEQ ID NO:8. The specification fails to provide proper support for this language in the claims for the following reason:

Page 14, lines 6-32, discloses that the present invention encompasses fragments or segments of the polypeptide. Furthermore, the specification discloses the sizes of the various embodiments of fragments that are contemplated by the instant invention. However, the instant specification does not disclose a "27" amino acid fragment of SEQ ID NO:8 as recited in the claim 37. The fragments as disclosed in the specification are not reflective of the specific amino acid fragment recited in claim 37. This rejection can be obviated by reciting a specific amino acid fragment for which there is support in the specification.

Rejection under 35 USC § 112, first paragraph-enablement

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9. Claims 37-40 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an isolated nucleic acid encoding a polypeptide comprising an amino acid sequence set forth in SEQ ID NO:8, does not reasonably provide enablement for an isolated nucleic acid encoding a polypeptide comprising a 27 amino acid fragment of the amino acid sequence set forth in SEQ ID NO:8. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Page 18, lines 25-30, of the instant specification discloses that mutant receptors have receptor activity but have an amino acid sequence which differs from that of the receptor found in nature, whether by way of deletion, substitution or insertion. In claim 37, the claimed genus of nucleic acid molecules encompasses (1) variants that share BLRx activity, however, the specification does not teach how to make a nucleic acid sequences encoding a polypeptide having an amino acid sequence less than SEQ ID NO:8, that would share those activities and (2) variants that do not share BLRx activity, however, the specification does not teach how to use these variants that do not share BLRx activity. Applicants are not claiming polynucleotide sequences that are "probes" but polynucleotide sequences that encode BLRx proteins. The specification only enables polynucleotides encoding BLRx proteins of amino acid sequence set forth in SEQ ID NO:8 and is not enabled for a polynucleotide encoding a polypeptide having an amino acid sequence anything less than what is disclosed in SEQ ID NO:8.

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The issue in the instant case is the breadth of the claims in light of the predictability of the art as determined by the number of working examples, the skill level of the artisan and the guidance presented in the instant specification and the prior art of record. The recitation of "comprising a 27 amino acid fragment..." in claim 37, is not a sufficient structural limitation and broadly encompasses any protein comprising 27 contiguous amino acid sequences recited in the claim. Because of the presence of the term "comprising" in claim 37, the claim encompasses a polynucleotide encoding a polypeptide comprising any 27 contiguous amino acids from SEQ ID NO:8, and therefore the claim encompasses polypeptide embodiments encompassing any other 273 amino acid sequences or more in addition to these 27 contiguous amino acids. The number of polypeptide embodiments in this case are over 5×10^{200} .

Furthermore, the instant specification does not provide the guidance needed to use these polynucleotides as claimed. Even if Applicants recited a functional limitation for the BLRx polypeptide in the instant claims, Applicants have not taught how to make the instant polynucleotides encoding polypeptides with the stretch of 27 contiguous amino acids as recited in claim 37. There is no guidance in the specification for how to make and use polynucleotides encoding proteins having the amino acid sequences anything less than that disclosed in SEQ ID NO:8. There is not adequate guidance as to the nature of the polynucleotide analogues or variants that may be constructed, but is merely an invitation to the artisan to use the current invention as a starting point for further experimentation. Therefore, Applicants have not presented enablement commensurate in scope with the claims.

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Rejection under 35 USC § 112, first paragraph-written description

10. Claims 37-40 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant is directed to the Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

Claim 37 is a genus claim. According to the specification, the term "mutant" means a protein having one or more amino acid substitutions, deletions or insertions made to SEQ ID NO: 8. The specification and claim do not indicate what distinguishing attributes shared by the members of the genus. The specification and claim do not place any limit on the number of amino acid substitutions, deletions, insertions and/or additions that may be made to SEQ ID NO: 8. Thus, the scope of the claim includes numerous structural variants, and the genus is highly variant because a significant number of structural differences between genus members is permitted. Although the specification states that these types of changes are routinely done in the art, the specification and claim do not provide any guidance as to what changes should be made. Structural features that could distinguish compounds in the genus from others in the protein class are missing from the disclosure. No common structural attributes identify the members of the genus. The general knowledge and level of skill in the art do not supplement the omitted description because specific, not general, guidance

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is what is needed. Since the disclosure fails to describe the common attributes or characteristics that identify members of the genus, and because the genus is highly variant, a nucleic acid encoding a polypeptide comprising a 27 amino acid fragment of SEQ ID NO: 8 alone is insufficient to describe the genus. One of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe the genus. Thus, applicant was not in possession of the claimed genus of nucleic acid molecules encoding polypeptides that comprise only portions of the full-length sequence encoding a BLRx polypeptide of amino acid sequence set forth in SEQ ID NO:8.

New Rejection under 35 USC § 112, second paragraph

8. Claims 15, 18-19, 41, 37-40 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 recites wash conditions in the presence of "500 mM salt" which is improper because at this high salt concentration the washing solution will be viscous.

Claim 37 improperly recites "encoding an polypeptide" rather than "encoding a polypeptide".

Claims 38-40 are rejected under 35 U.S.C. § 112, second paragraph, insofar as they depend on claim 37 for its limitations.

Claims 15, 18-19, 41 are rejected under 35 U.S.C. § 112, second paragraph, insofar as they depend on claim 15 for its limitations.

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Conclusion

No claim is allowable.

Advisory Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prema Mertz whose telephone number is (703) 308-4229. The examiner can normally be reached on Monday-Friday from 7:00AM to 3:30PM (Eastern time).

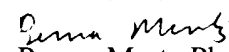
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler, can be reached on (703) 308-6564.

Official papers filed by fax should be directed to (703) 305-3014 or (703) 308-4242. Faxed draft or informal communications with the examiner should be directed to (703) 746-5300.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [yvonne.eyler@uspto.gov].

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark Office on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.


Prema Mertz Ph.D.
Primary Examiner
Art Unit 1646
June 23, 2003